

Appl. No. 10/065,105
Amdt. dated April 11, 2005
Reply to Office action of January 12, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 5 Claim 1 (Currently Amended): A writing power control method of a compact disc drive for controlling a writing power used for writing data onto a compact disc utilizing a constant angular velocity mode, [[:]] the writing power control method comprising:
- 10 (a)dividing said compact disc into a plurality of writing zones according to a plurality of reference linear velocities, each of said plurality of reference linear velocities having a corresponding reference writing power and a corresponding reference reflected pulse level;
- (b)obtaining a writing linear velocity of desired data;
- (c)determining a target writing zone within said plurality of writing zones of said compact disc and two reference linear velocities of said target writing zone
- 15 according to said writing linear velocity of desired data;
- (d)determining an optimum writing power and a target reflected pulse level of said desired data according to the corresponding reference writing powers and the corresponding reference reflected pulse levels of said two reference linear velocities; and
- 20 (e)performing a running optimum power control (ROPC) procedure with said optimum writing power and said target reflected pulse level of said desired data for writing said desired data onto said compact disc[[:]] ;
- wherein, a same constant angular velocity is utilized in each of said plurality of writing zones while writing said desired data onto said compact disc.
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- Claim 2 (Original): The writing power control method of claim 1 wherein said compact disc comprises a power calibration area (PCA) for performing a power calibration,

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5 said plurality of reference linear velocities comprising a first reference linear velocity and a second reference linear velocity, the reference writing powers comprising a first reference writing power with respect to said first reference linear velocity and a second reference writing power with respect to said second reference linear velocity, and the writing power control method further comprises:

controlling a spin velocity of said compact disc for making a linear velocity of said power calibration area equal to said first reference linear velocity so as to determine said first reference writing power by performing said power calibration at said power calibration area;

10 controlling said spin velocity of said compact disc for making said linear velocity of said power calibration area equal to said second reference linear velocity so as to determine said second reference writing power by performing said power calibration at said power calibration area;

15 determining other reference linear velocities besides said first reference linear velocity and said second reference linear velocity according to said first reference linear velocity and said second reference linear velocity; and

determining other reference writing powers besides said first reference writing power and said second reference writing power according to said first reference writing power and said second reference writing power.

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Claim 3 (Original): The writing power control method of claim 2 further comprising performing a writing test at said power calibration area with each reference linear velocity and each corresponding reference writing power, and reading a plurality of reflected pulses thereof for determining a plurality of said reference reflected pulse levels corresponding to the reference linear velocities.

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Claim 4 (Original): The writing power control method of claim 1 wherein step(d) further comprises:

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- determining said optimum writing power of said desired data according to said writing linear velocity of said desired data, said two reference linear velocities of said target writing zone, the corresponding reference writing powers of said two reference linear velocities; and
- 5 determining said target reflected pulse level of said desired data according to said writing linear velocity of said desired data, said two reference linear velocities of said target writing zone, the corresponding reference reflected pulse levels of said two reference linear velocities.
- 10 Claim 5 (Currently Amended): A writing power control method of a compact disc drive for controlling a laser power used for writing data onto a program area of a compact disc utilizing a constant angular velocity mode, the compact disc comprising a power calibration area (PCA) for performing a power calibration [[:]] , the writing power control method comprising:
- 15 (a)dividing said program area into a plurality of writing zones according to a plurality of reference linear velocities, each of the reference linear velocities having a corresponding reference writing power and a corresponding reference reflected pulse level, said plurality of reference linear velocities comprising a first reference linear velocity and a second reference linear velocity, the
- 20 reference writing powers comprising a first reference writing power with respect to said first reference linear velocity and a second reference writing power with respect to said second reference linear velocity;
- wherein a procedure of dividing said program area into said plurality of writing zones comprises:
- 25 (a.1)controlling a spin velocity of the compact disc for making a linear velocity of said power calibration area equal to said first reference linear velocity so as to determine said first reference writing power by performing said power calibration at said power calibration area;

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- (a.2)controlling said spin velocity of the compact disc for making said linear velocity of said power calibration area equal to said second reference linear velocity so as to determine said second reference writing power by performing said power calibration at said power calibration area;
- 5 (a.3)determining other reference linear velocities besides said first reference linear velocity and said second reference linear velocity according to said first reference linear velocity and said second reference linear velocity;
- (a.4)determining other reference writing powers besides said first reference writing power and the second reference writing power according to the first reference writing power and the second reference writing power; and
- 10 (a.5)performing a writing test at said power calibration area with each reference linear velocity and each corresponding reference writing power, and reading a plurality of reflected pulses thereof for determining a plurality of said reference reflected pulse levels corresponding to said plurality of reference linear velocities;
- 15 (b)obtaining a writing linear velocity of desired data; and
- (c)determining an optimum writing power and a target reflected pulse level of said desired data according to said writing linear velocity of said desired data so as to perform a running optimum power control (ROPC) procedure for writing said desired data onto said program area of said compact disc;
- 20 wherein, a same constant angular velocity is utilized in each of said plurality of writing zones while writing said desired data onto said compact disc.

Claim 6 (Original): The writing power control method of claim 5 wherein the step of

25 determining said optimum writing power and said target reflected pulse level of said desired data comprises:

determining said optimum writing power of said desired data according to said writing linear velocity of said desired data, two reference linear velocities of a

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5 writing zone where said writing linear velocity belongs to, two corresponding reference writing powers of said two reference linear velocities; and determining said target reflected pulse level of said desired data according to said writing linear velocity of said desired data, said two reference linear velocities of said writing zone where said writing linear velocity belongs to, two corresponding reference reflected pulse levels of said two reference linear velocities.

10 Claim 7 (Original): A writing power control method of a compact disc recorder for controlling a laser power used for writing data into a program area of a compact disc utilizing a constant angular velocity mode, said writing power control method comprising:
calculating a plurality of reference linear velocities based on a constant angular velocity at different radii of said compact disc;
15 making a linear velocity of a power calibration area on said compact disc equal to one of said plurality of reference linear velocities so as to determine a first reference writing power;
making said linear velocity of said power calibration area on said compact disc equal to another one of said plurality of reference linear velocities so as to
20 determine a second reference writing power;
performing a writing test at said power calibration area with each of said plurality of reference linear velocities and the corresponding first and second reference writing powers, thus determining first and second reference reflected pulse levels respectively;
25 obtaining a writing linear velocity of a desired data; and determining an optimum writing power and a target reflected pulse level of said desired data according to said writing linear velocity of said desired data so as to perform a running optimum power control (ROPC) procedure for writing

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said desired data into said program area of said compact disc[.];
wherein, a same constant angular velocity is utilized while writing said desired data
onto said compact disc at any radii of said compact disc.

- 5 Claim 8 (Currently Amended): The writing power control method of claim 7 further comprises a step of obtaining other reference writing powers according to said ~~first~~ first reference writing power, said second reference writing power and a distributing manner of said plurality of reference linear velocities.
- 10 Claim 9 (Original): The writing power control method of claim 8, wherein the step of performing said writing test at said power calibration area further comprises a step of determining other reference reflected pulse levels with each of said other reference writing powers and the corresponding reference linear velocity.
- 15 Claim 10 (Original): The writing power control method of claim 7 wherein the step of determining said optimum writing power and said target reflected pulse level of said desired data comprises:
- 20 determining said optimum writing power of said desired data according to said writing linear velocity of said desired data, two of said plurality of reference linear velocities and the corresponding first and second reference writing powers; and
- 25 determining said target reflected pulse level of said desired data according to said writing linear velocity of said desired data, two of said plurality of reference linear velocities and the corresponding first and second reference reflected pulse levels.